

INFOCUS

BETTERING THE WORLD
ONE TECH AT A TIME

Digitising the
global economy

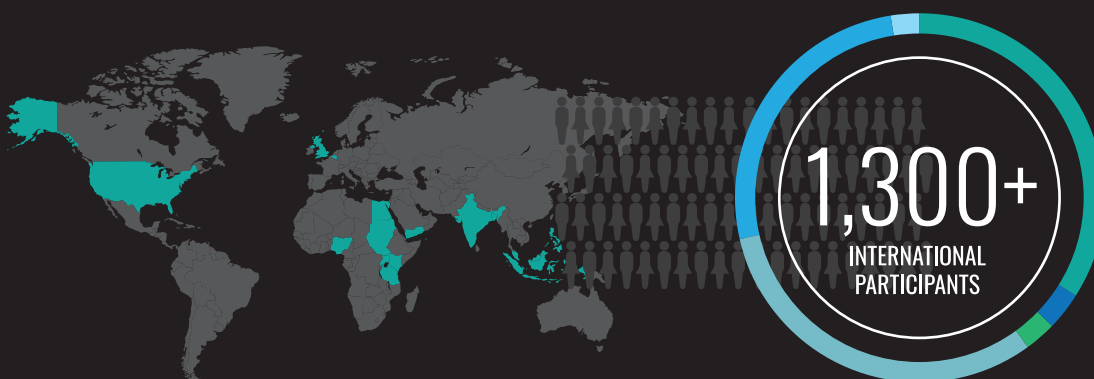
Lowdown on
quantum computing

Fintech changes
Islamic finance

Composing music
with AI

WIEF INITIATIVES 2018 PUSHING THE OBJECTIVES ON ALL FRONTS

Over 1,300 participants from across
the globe attended events held in 2018



WIEF-UEF Chennai Roundtable 2018

456 participants | 5 sessions

WET – Global Discourse on Quantum Computing

43 participants from 13 industries

WBN Social Media Workshop

36 participants

WYN – IdeaLab Goa 2018

420 participants
20 sessions | 35 speakers

WET AKEPT-WIEF Social Enterprise Forum

350 participants
13 sessions | 35 speakers

Women Entrepreneurs Strategic Workshop

30 participants



WIEF Foundation 2018 initiatives had
over 50 sessions covering variety of topics

04

First Words

First Words by Chairman of
WIEF Foundation

04

05

Quick Focus

Library vs E-books

05

08

Economy

The Future of Jobs

08

13

Finance

Islamic Fintech Gains Momentum

13

Disrupting Islamic Finance

17

Easing Microfinancing

22

25

Green

Bringing Water to The Desert

25

28

Halal

Halal Influences Japan's
Tourism

28

31

Business

A Strategic Workshop

31

33

Tech

The Future of Quantum
Computers

33

The Philosophy of Robots and
Ethics

35

39

Arts & Tech

To the Beat of Technology

39

42

Youth

A Lab Full of Ideas

42

About IN FOCUS

It is a complimentary bi-annual publication. Its inaugural issue was published in November 2017 and it is an extension of WIEF Foundation's online bank of articles that is constantly growing to cater to the reading pleasure of the global business community. Do drop us a line on economic and business-related matters you think we should report on.

Editorial Info

IN FOCUS online

Web: infocus.wief.org

Email: infocus@wief.org

Digital version:

infocus.wief.org/digital-version

IN FOCUS editorial team

Su Aziz, su@wief.org

Samar Al-Montser, samar@wief.org

Publisher: WIEF Foundation

Address: 157 Hampshire Office Place, 1 Jalan Mayang Sari, 50450 Kuala Lumpur, Malaysia.

Tel: +603 2163 5500

ON THE COVER, ISSUE 3

Bettering the World, One Tech at a Time

Photo by Gilles Lambert on Unsplash





Bettering The World, One Tech at a Time

I can't help but notice, how we're attempting to better the world, one tech at a time. This is because it is what is needed in the current world we live in. Humour me while I share with you a few examples and let's put them into perspective.

I'll begin by looking to the east. In Japan, robots fill the void of its shrinking workforce due to a steadily decreasing young population that puts the industrious country's economy at risk. Robots can lower that risk. Now, I switch to the west where fully electric cars will significantly decrease their population's dependency on fuel and lower carbon emissions.

Finally, closer to home, increase accessibility to loans due to blockchain-based microlending platforms positively disrupts micro businesses and SMEs, not to mention effortless money transfers.

However, in all these, there are caveats. For instance, we still need a bridge between robots and human interactions to programme as well as to innovate, electric cars are good as long as we ensure that the electricity we use isn't generated by fossil fuel – that would certainly defeat the purpose – and finally, blockchain, along with cryptocurrency, discombobulate conventional banking paradigm, progressively making it obsolete.

Every action has a consequence. Be it bad or good and we know this to be true. That is why, at the WIEF Foundation, through our year-round initiatives such as WIEF Roundtable (WRT) and WIEF Education Trust (WET), we endeavour to cultivate foresight and put forth discussions on topics such as quantum computing and social enterprise that play a big role in a circular economy and inclusivity. We peek to the future through these experts, their hypothesis and analysis.


It is also why we invest in the way of knowledge and experience-sharing through our WIEF Young Leaders Network (WYN) for young entrepreneurs because we see the future and they're holding it in the palm of their hands. We'd like to think that, through our WYN programmes, we're helping them hold it with a firm grasp and mould it with assurance, coupled with confidence.

In this third issue of our in-house magazine, we're giving you glimpses of these initiatives, indications of things to come and how the development of technology better our life. At the end of the day, we only get one life and if we combine all our greatness, it can be stupendous. The signs are already there and we are on our way.

Therefore, yet again, I urge you to not only ingest what is written between the covers of our magazine, but enjoy reading it. Reading should still bring pleasure and if we still live by that adage, then libraries will still remain to be pleasure domes. Alas, with the advent of digital books brought on by Amazon and Kindle, libraries are no longer in vogue. Seeing this, we've also gathered and included in this issue opinions on the matter.

For now, I shall pen off and leave you to reflect on them, and more. Most of all, I hope the articles in our magazine will inspire you to positively embrace the inevitable change that technology brings.

Tun Musa Hitam
Chairman of WIEF Foundation



LIBRARY VS E-BOOKS

Some may argue that libraries are still necessary. Here, nine individuals share their thoughts on the relevance of public libraries today. **Samar Al-Montser** reports.

The fact is that there's more digital storage space available on the internet than public libraries. E-books from online libraries like OverDrive and 3M Library provide easy accessibility to content from all over the world. Today's vast digital content shift might just mean that library services need to also change what they provide and how they display or present it. Countries like the

Netherlands, China and Qatar are reinventing their library buildings for the modern age. On the other hand, high costs of running public libraries have forced closure of almost 500 libraries in the United Kingdom, since 2010.

Here, we ask some people what they think about public libraries and if it still plays a role in their life today.



Louise Tan, 37
English Teacher,
United Kingdom

Public libraries in the United Kingdom remain widely frequented. That's a testament to both their relevance and the fact that they provide something more. I feel that in fairly individualistic and privatised times, libraries are physical venues, free and open to all. They're perhaps one of the few surviving links between, what I think many would agree is, a weakening sense of community. In an age of buying and owning, libraries can help teach children and remind us about sharing resources, having consideration for others, values which some might argue are in decline.



Csaba Bundik, 41
Innovations
Manager,
Management
Consultant,
Hungary/Vietnam

Paper-based books are not just storages of paper-based information, they are temples of knowledge and people go there to learn, prepare themselves for exams and be with like-minded people. Public libraries might change in the near future, but the intention of people to be surrounded by books and like-minded people will remain. Mine began with my grandfather's bookshelf which had a series of Jules Verne books. I became a bibliophile and the start of a long journey which took me from a small village to another continent altogether.



Hilda Makombe, 29
English teacher,
Zimbabwe

In Zimbabwe, the population still prefers the more traditional approach of getting information. I don't think it's better to completely switch to the internet. In a public library, you can easily access millions of books for a small fee. Public libraries appeal to those who prefer a place of academic solitude, who don't have resources or are not tech-savvy enough to go online for research. The question we should be asking ourselves is how effective is online reading compared to library books. Some people find that reading from a screen puts a strain on their eyes.



Vinayakk
Rajesekhar, 27
Digital
Communications
Consultant, India

Public libraries are extremely relevant and important in an increasingly digital world. In addition to being storehouses of aesthetic and intellectual value, they serve as a hub for social mobility among people belonging to various classes, groups, communities, and social strata. My most memorable moment in a library was when I walked into Sciences Po's library in Paris. I found myself awestruck, stunned even, at the seamless interface with digital repositories without undermining the importance of the other.



Hasna Iflal, 41
Vice Principal,
Hejaaz
International
School, Sri Lanka

Some of the new generation kids appreciate the feel of a physical book in their hands. So, libraries must innovate to compete with digital books. When I was a schoolgirl, and had half an hour to spare after school before going home, my friends and I used to run to the public library which was about half a kilometre away. We'd run like mad but the pleasure of reading made all the sweating and panting worthwhile.



Fadhl Al-Maghafi, 56
Yemen Embassy,
Czech Republic

I think public libraries are still relevant. I enjoy going to the library because of my love for books. I prefer digital libraries when I'm researching since they're helpful in finding information. I personally like reading hard copies instead of digital books.





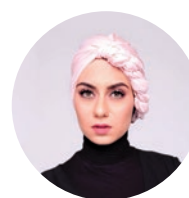
Professor Dr Syed Alwi Shahab, 74
Retired Professor
of Philosophy,
Education and
Psychology, Malaysia

Libraries are no longer the repository or archive of printed matter. For public libraries to survive, they need to morph into social or community service providers to nurture community life. My first encounter with books was in an abandoned home in Singapore, after the war. My parents locked me up in a room full of books. It was the library of an Englishman who left in a hurry to escape the Japanese army. I couldn't understand any of it, I was only five years old but I loved the pictures and illustrations. What struck me most was the gilt-edged binding and the design of the hardcover. Today, I still feel a tinge of awe and nostalgia when I see a beautifully bound hardcover book, a rare occurrence, sadly.



Hasan Al-Akraa, 18
Founder of Al-
Hasan Volunteer
Network, Syria

I think public libraries are losing their value because of e-books, fewer people go to public libraries to read books, but I go to the library almost every day. Public libraries add value to the town or city they're in. Syria would be messed up without libraries. Something would be missing in schools, universities and public areas if there were no public libraries. The society wouldn't find ways to educate themselves and read. Every country needs public libraries.



Fatima Gharawi, 29
Founder and Chief
Executive Officer,
Inspired Soul,
Denmark

I don't think that in the future we'd still have a traditional public library. I imagine a public library where you don't have to carry heavy books. How will that knowledge be consumed or presented? I can imagine a modernised way of people meeting to gain knowledge and read. It's all about the atmosphere and when you're around people who are there to learn it also helps you learn. That's something the internet can't serve.



THE FUTURE OF JOBS

A man with short brown hair and a serious expression is sitting in a silver metal shopping cart. He is wearing a brown and tan plaid coat over a teal turtleneck sweater. His legs are crossed at the ankles, and he is wearing black shoes and white socks with a red and blue anchor pattern. He is holding a watch on his left wrist. The background is a solid blue color. Overlaid on the image is large, bold, pink text that reads "THE FUTURE OF JOBS".

Here, *Jyrki Katainen*, European Commission Vice-President for Jobs, Growth, Investment and Competitiveness, writes on the future of work in Europe during this technological age, how to tackle as well as foresee the challenges, maximise the opportunities, the circular economy and the direction in which employment is heading.

The state of the economy of the European Union (EU) is robust: growth has reached a 10-year high with 12 million jobs having been created since the Juncker Commission took office in 2014. Unemployment is steadily declining, and youth unemployment is at the lowest level in 20 years. Banks are more resilient, investment has picked up and public finances are in increasingly better shape.

New technologies, in particular AI, and circular economy, are the key mega trends currently shaping the world. Societies and economies need to adjust to take advantage of the almost limitless opportunities and to meet the challenges this creates.

Another important factor is international trade, which continues to be an important driver for the global economy. The EU attaches great importance to open markets, rules-based trade order and to avoiding trade disputes which cause damage to the world economy. Some of our achievements in this area include the trade agreements concluded with Canada and Japan.

We continue our efforts with the United States and China too. Among the ASEAN countries, the EU has concluded negotiations for Free Trade Agreements (FTA) with Singapore and with Vietnam, and is negotiating FTAs with several other ASEAN countries such as Thailand, Malaysia, Indonesia and the Philippines. These negotiations and agreements are important contributors, also for boosting the global economy.

EU's Boost on Investments and Job Creation in Numbers

750K Jobs

The macro-economic impact of the European Fund for Strategic Investment (EFSI) on the EU have already supported more than 750,000 jobs with the figure set to rise to 1.4 million jobs by 2020 compared to the baseline scenario.

Significant Reforms to Boost Investment and Job Creation

The Commission launched the Investment Plan for Europe in November 2014, as our main response to reverse the downward trend of low-levels of investment, and put Europe on the path to economic recovery.

We saw three things that needed to change: the business environment in Europe wasn't always conducive to encouraging investment, meaning structural reforms were crucial; companies required technical support to bring their investment proposals to light and conversely investors needed to know what sort of opportunities existed in the areas that interested them, and; as a continent, we needed to use the precious resources we had in a smarter way.

This meant investing public money wisely to attract private resources into projects of strategic importance for the EU.

0.6%

EU's Investment Plan has already increased EU GDP by 0.6 per cent and set to increase EU GDP by 1.3 per cent by 2020.

EUR335B

Agreements under the EU guarantee have mobilised EUR335 billion in new investments to benefit 700,000 startups and SMEs.

When it comes to what reforms are needed, as well as what the EU is doing to deepen the single market and remove barriers to investment, Member States should also increase investment in areas conducive to growth, such as infrastructure, health, education and research. This could mean tackling investment bottlenecks such as regulatory and administrative barriers and lengthy approval procedures, as well as identifying a stable pipeline of projects and ensuring these are well coordinated.

Since the start of the mandate in 2014 Q4, there are seven million fewer unemployed across the EU – taking as end date 2018 Q2. This means a decrease of almost 30 per cent, from 24,214,000 to 17,213,000 unemployed. According to Eurostat, the top three countries with the most significant reduction in terms of percentage point change of the unemployed active population are Spain, Croatia and Cyprus.

Percentage Increase in Investments and Job Creation in the EU

Employment has reached new record levels. Under EU's Investment Plan for Europe, they've supported more than 750,000 jobs. Calculations show that the Plan has already increased EU GDP by 0.6 per cent.

238M

238 million employed in the EU in 2018 Q1.

EU Tackles Youth Unemployment

With almost one young person out of six on the labour market searching, but unable to find employment, job creation is hugely important for our youth. Although there are still too few young people working, the number of young unemployed is now lower than before the economic and financial crisis. The Commission is supporting Member States in the implementation of the Youth Guarantee, to which they have all committed.

The Youth Guarantee is a driver for real reform. It's the central plank in our efforts to improve access pathways to the labour market and facilitate the transition from education to the job market and it has already started to bring results. Around 20 million young people have registered and 14 million have received an offer. Since 2013, we have 2.3 million fewer young unemployed in the EU and 1.4 million fewer young people who are not in employment, education or training (the so-called NEETs).



Furthermore, the Youth Guarantee has supported important reforms to countries' educational systems, employment services, and partnerships to deliver better opportunities for young people. Last year, the Commission took measures to accelerate the implementation of the Youth Guarantee by increasing the pre-financing of the Youth Employment Initiative.

Now, following the agreement of Council and Parliament, the Commission is adding an extra EUR1.2

billion to continue rolling out the Youth Guarantee through the Youth Employment Initiative. This will benefit an additional one million young people by 2020.

1.4M

Under EU's Investment Plan, employment figures to rise by 1.4 million jobs by 2020.

Spotlight's on SMEs and Strategic Investments

SMEs represent 99 per cent of all businesses in the EU. So, it's crucial to support their growth and innovation. However, one of the most important issues facing SMEs is their difficulty accessing finance.

The Commission is working with financial institutions to improve the financing environment for small businesses in Europe by stimulating the provision of loans and venture capital through financial instruments. Aid is channelled through local, regional, or national authorities, or through financial intermediaries such as banks and venture capital organisations that provide funding through financial instruments.

The Investment Plan for Europe supports strategic investments in key areas such as infrastructure, energy efficiency and renewable energy, research and innovation, environment, agriculture, digital technology, education, health and social projects. It also helps small businesses to start up, to grow and to expand by providing risk finance.

10.5M

EU created 10.5 million jobs since 2014.

Investments and Job Creation Challenges

We faced a lot of scepticism when we launched the Investment Plan as critics didn't believe we could use a relatively small amount of the EU budget to crowd in private investors and trigger billions in new investment. However, when we surpassed our original EUR315 billion investment target in July this year, we proved that the EU is a front runner in using private money for the public good.

By adopting a market-driven approach and making strategic use of the EU budget, we've supported hundreds of innovative investment projects and helped thousands of small businesses to scale up. We've financed projects which wouldn't have been possible without the Investment Plan, and all without creating new debt: two-thirds of the investment come from the private sector.

Building on the model of the Investment Plan for Europe, the EU has established in 2017 an External Investment Plan, to help boost investment in partner countries. The aim is to use EU public funds to boost investment, notably by blending public funds with funds from the private sector and from International Financial Institutions. The Plan's current geographical focus is on Africa and on what we call the European Neighbourhood.



Its five priority investment areas could be valid also in Asia, depending on the country: sustainable energy and sustainable connectivity; financing of micro, SMEs; sustainable agriculture, rural entrepreneurs and agroindustry; as well as sustainable cities and digitalisation for sustainable development. I'd add also circular economy and new technologies as overarching focus areas.

With this initiative, the EU will go beyond 'traditional' development aid based on grants, and use innovative financial products such as risk sharing guarantees instruments, as well as the blending of grants and loans to ensure that investments have a major positive impact in societies and economies.

The EU is the biggest provider of Foreign Direct Investment in the partners in ASEAN and in many other countries as well as regions. There's great potential for boosting job creation and sustainable growth together, for our mutual benefit.

13.8M

EU created 13.8 million jobs since 2013 crisis.

The Future of Jobs During this Technological Age

AI holds enormous potential for our economy and the progress of our society: new products, new services and increased productivity. It's essential that Europe becomes a world player in order to reap the maximum benefit from this development. AI and robotics are key drivers of growth and productivity. A number of sectors, such as health and agriculture, will benefit from these technologies, which will make it possible to diagnose illnesses faster and more accurately and reduce pesticide use.

Yet, questions related to the impact of AI on the future of work and existing legislation are raised. We must remain vigilant not only to guarantee the competitiveness of our companies but also to influence the debate around the use of robots and artificial intelligence, for example, by highlighting the European values of human dignity and protection of privacy. This calls for a wide, open and inclusive discussion on how to use and develop AI successfully and ethically sound.

It's clear that the development of robotics and artificial intelligence and, more generally, the current digital revolution will affect the working environment and working conditions. The European Commission has presented in April its approach on artificial intelligence with one part specifically on preparing for socio-economic changes: modernise education and training systems, and support labour market transitions. The Commission will support business-education partnerships to attract and keep more AI talent in Europe, set up dedicated training schemes and support digital skills.

The Importance of Being Circular

The circular economy, as an agenda for change, is not only an environmental necessity – it's the only model that can ensure the long-term the success of our economy and competitiveness of European companies. Throughout the last three years the Commission has spared no effort in implementing the EU Circular Economy Action Plan, laying foundation to create a conducive regulatory framework allowing new, circular business models to thrive.

Our most recent flagship initiative is the European Strategy on Plastics, which will improve the economics, quality and uptake of plastic recycling and reuse in the EU and reduce plastic leakage into the environment. This is a fascinating piece of our job – creating new markets and new opportunities, which will make our economies and societies more sustainable. Both in economic terms and environmental terms. In the Circular Economy both words count. Without economic logic there's no Circular Economy. Without circulation our economy isn't sustainable.

Last Words

The model of using a small amount of the EU budget as a guarantee to boost investment, as we have done under the Investment Plan, has proven a success. We'll follow this same approach in the next EU budget, under our InvestEU Programme. The Commission's proposing EUR15.2 billion be earmarked for the InvestEU Fund. This will allow the EU budget to provide a EUR38 billion guarantee, which will be used to support strategically important projects across the EU. By crowding in private and public investments, the Commission expects the InvestEU Fund to trigger more than EUR650 billion in additional investment across the EU over the seven-year period. ■



About The Author

Jyrki Katainen has been the European Commission vice president for jobs, growth, investment and competitiveness since 2014. He was previously Prime Minister of Finland from 2011 to 2014. Part of vice president Jyrki's role is to deliver the new jobs, growth and investment programme that's to mobilise up to EUR500 billion in additional public and private investment in the real economy by 2020 and help improve the business environment to make Europe a more attractive place in which to work as well as invest.



MOMENTUM

ISLAMIC FINTECH GAINS

Fintech boosts Islamic finance in so many ways, as *Ashar Nazim* points out here. He believes, it's very possibly the tool that'll defeat its institutionalised rival, thus paving the path for a lot more investment and entrepreneurs to participate in its space.

Finance has always benefited from technological evolution. The transatlantic cable in 1866 was a foundational technological advance that led to an era of financial globalisation lasting till the Great War. However, the change the finance industry has gone through in the last decade has been dizzying.

The 2008 financial crisis left banks facing both high cost regulatory obligations and an image problem that combined to slow innovation.

This encouraged non-banking actors in telecom, retail, sharing economy platforms and such, to start moving into the financial services space. Technologies like social, mobile, analytics and cloud, allow for new entrants to cost effectively launch and scale customer-centric businesses that took a share of the customers' wallet.

Today, waqf gives you the ability to open a bank account, using e-KYC (electric Know Your Customer) and an effortless customer experience

without visiting a bank, in under seven minutes. This was unthinkable a decade ago, as was the fact that fintech would be serious players in the finance industry.

Now, fintech investments are having record breaking years. It's encouraged by the forecast of over 1.5 billion Islamic finance users who'll enter the digital finance space in OIC countries by 2020. Thus, we, at Finocracy, aim to harness this dramatic potential.

Fintech's Benefit on Islamic Finance

Islamic banks operate in markets with youth bulges. In fact, majority of OIC population is under the age of 24 and a lot of them are part of large under-banked and unbanked populations in harder to reach rural or Tier 2 urban areas. However, new, clever and innovative fintech models allow access to them.

Existing Islamic banks also benefit when they use fintech to adopt new revenue models and tame cost structures – allowing them to go on the offensive to revive declining asset growth and deposits with Islamic banks. The waqf community banking platform is a great example of this, where customers become emotionally engaged with banks as they see their capital create social impact. These emotionally engaged customers have a greater customer lifetime value.

Fintech also contributes to Islamic finance's popularity. Firstly, through cost. By cutting cost of service down significantly, fintech allows banks to respond faster with greater coverage of customers. Secondly, through accessibility. Fintech gets you to your customers wherever they may be and whatever complex customer journeys they are undertaking.

What you must remember is, for millennials and generation Z, mobile isn't a channel, it's a lifestyle. Through fintech, Islamic finance can reach these generations – who are often sceptical of banks – in a convenient manner, with fast, intuitive and friendly customer experience.

A Boost for Financial Inclusion

This is a subject close to my heart. Financial inclusion is why we launched Finocracy under the new management in 2017, in Bahrain. We believe that people who are passionate about making great impact by matching ethical capital with opportunity and entrepreneurship, will accelerate critical financial inclusion and have large positive macroeconomic ripple effects on economies for generations. It's a mission that drives us daily.

In fact, Finocracy's core objective is to open access to at least 10 million underbanked customers within Gulf Cooperation Council (GCC) in the first phase, using an innovative platform-first approach.

Micro and small finance has proven to be a powerful poverty alleviation mechanism and Islamic fintech is the most frictionless way to reach as well as compel people in OIC countries to try microloans. The bottom of the pyramid is where banks don't tread. Fintech can use powerful AI capabilities, that in turn, can use behavioural analysis and metadata mining to greatly increase successful loans, giving banks confidence to move into the area. Fintech also reduces costs of outreach in this area.

”

...for millennials and generation Z, mobile isn't a channel, it's a lifestyle. Through fintech, Islamic finance can reach these generations – who are often sceptical of banks...

Where Fintech Gains Momentum

Even though the three largest Islamic fintech jurisdictions are Malaysia, Indonesia and the UAE, we're excited about MENA (Middle East and North Africa region) because it's where all the pieces are coming together for momentum. Currently, customer desire exists for Islamic banking and the advent of smartphones, 4G and soon 5G, will connect record amounts of people, allowing fintech to reach them.

Bahrain is at the forefront of capitalising this impetus. The fintech ecosystem is well in place with regulators, government bodies, innovators and investors coming together to collaborate as well as support innovation. Importantly, the mindset of banks has matured and accepting, as they view fintech as partners instead of competitors. An example of this is: waqf working with a leading bank to create digital customer on-boarding that took less than four months to build and implement, at a third of expected cost.

Islamic or Conventional Fintech, Which Route?

For developing Islamic countries, Islamic fintech has the absolute potential to better boost the economy of host nations. For example, Islamic social finance is a half-trillion-dollar opportunity. There's tremendous room for growth and opportunity in this sector that's currently suffering from a lot of inefficiencies.

Islamic fintech especially as part of a broader platform also holds great promise in the agricultural sector. It's no secret that crop yields in OIC nations are lower than the global average, while most nations in OIC are water scarce or rushing toward water scarcity. Mobile delivered small-finance enabled by disruptive technologies, combined with digital market places and personalised best practices per farmer, can increase yields, conserve water and change the fortunes of hundreds of millions of people.

Muslims are significantly less likely to own a formal account or deposit their savings into a traditional bank. Islamic banking powered by fintech creates greater propensity for financial inclusion especially in more conservative rural areas, where the largest unbanked population in OIC lies. I can't overstate the importance of this: we're literally talking about higher country GDP growth linked to penetration of Islamic fintech in OIC countries. Conventional fintech will always be at a disadvantage here.

Boosting Islamic Finance in Non-Muslim Countries

Hypothetically, Islamic finance isn't limited to a single country, region or race. In fact, globally there are over 170 Islamic banks and 80 regular banks that offer Islamic finance windows. Do I expect non-Muslims in conventional markets to get a taste of Islamic banking in significant numbers? No. But the Islamic diaspora in mature western non-Muslim economies are a rare growth spot. Their percentage as a population is expanding faster than any other religious groups.

They do, however, have complex, distinct and fast-changing customer journeys. Also, they have very high expectations based on how well they are being served by digital players in all spheres of life. Islamic fintech with use of disruptive technologies has the best chance to engage, onboard, satisfy and monetise these customers.

Islamic Fintech, The Next Five Years

Well, fintegration, the integration of traditional Islamic banks with fintech business models will take a lot more prominent role. This integration will also extend to regtech (regulatory tech) and insurtech (insurance tech). Islamic fintech will be standardised on API-powered (application program interface) open banking platforms.

Islamic banks that work with these fintechs will 'freeze and wrap' their core banking and move resources from 'keeping the lights on' to innovation. The cost of Islamic banking is inherently higher than regular banking due to sub-scale operations, and we'll see Islamic fintech using blockchain to mitigate that in certain use cases, from smart contracts to trade finance.

The number of Islamic fintechs will increase at a tremendous pace. I fully expect the industry to grow at least five times in the next five years. I'm going to be brave and say, the industry will defeat its standardisation nemesis allowing for a lot more investment and entrepreneurs to enter this space. For our part, Finocracy is aiming to roll out 15 platforms by 2022, first five are already in the market. ■



About the Author

Ashar Nazim's 20-year involvement and experience in the Islamic finance industry is impressive. Since 2017, he is the managing director of Finocracy and also a fintech entrepreneur, advisor and investor. He has advised on setting up Islamic financial institutions across emerging markets as well as on digital innovation, transformation and implementation, plus on equity investments in the fintech industry in the Gulf

Cooperation Council. He helped assemble a consortium of Islamic banks for accelerated build-out of fintech platforms in MENA (Middle East and North Africa region) and co-founded a retail banking fintech solution that aims to position Islamic banks at the forefront of digital marketplace. Besides that, he regularly gets invited to speak at international forums.

ISLAMIC FINANCE

DISRUP
-TING

Islamic finance and takaful were the positive disruptive paradigms for financial services back in the 70's and 80's, but it has lagged behind. **Ajmal Bhatti** firmly believes the digital age provides the much-needed impetus for Islamic finance and takaful to achieve its real potential and intrinsic goodness for society, and the real economy.



Cutting to the chase, let's acknowledge that one of the main challenges for takaful companies is to make customers aware that takaful is different from insurance. If these companies succeed in delivering the message of takaful's uniqueness, they'd build the right scale they need and eliminate pricing and reserving inadequacies.

In truth, takaful and Islamic banks weren't supposed to be insurance companies and just banks. What's more, digitisation, fintech and insurtech (insurance technology), offer takaful and Islamic finance that golden opportunity to improve as well as overcome the challenges of operational structures, delivery and scale, to become real disruptors of financial services.

What to consider is, mass applications for financial inclusion are possible for two million people in areas and regions that still lack

access to basic savings and credit availability. This challenge exists even for countries that have high levels of financial inclusion, where even though majority of people may have basic bank accounts, the financing gap for small and micro-enterprises remains.

With that in mind, organisations such as MassesGlobal LLP, that provides services at micro and macro levels, are needed. This is to ensure financially and socially challenged individuals may take positive steps towards financial independence.

Where Lies Takaful's Popularity

Right now, Malaysia, Saudi Arabia and the UAE are major players in takaful followed by Indonesia, Pakistan and Egypt. Africa represents one of the fastest growing regions and Turkey is expected to pick up in the

near future. However, Malaysia continues to lead in improving governance of takaful at the regulatory and market levels, which is followed by several markets around the world.

Malaysia was the first country to implement risk-based capital framework for takaful and to enforce greater transparency in sales illustrations such as disclosure of wakala (agency contract) fees with strong regulations on qard (loan). Other countries such as Saudi Arabia, Bahrain, the UAE and Pakistan also have strong regulatory supervision and governance.

Bear in mind that the Gulf Cooperation Council (GCC) constitutes the largest share of global takaful contributions due to predominance of general lines of business, but Southeast Asia leads with 57 per cent of the global family takaful business.

MassesGlobal research reports that takaful is written in 29 countries as of 2017 and it represents a share by written contributions of:

15%

Southeast Asia (Malaysia, Indonesia, Brunei)

3%

Other regions (Pakistan, Turkey, Bangladesh, Sri Lanka, Jordan, Yemen)

77%

GCC (UAE, Oman, Bahrain, Kuwait, Qatar and Saudi Arabia)

5%

Africa (Sudan, Egypt, Nigeria, Senegal, Tunisia, Libya, Kenya, Tanzania, Mauritania, Gambia, Mauritius, South Africa)

Why it's Needed

Takaful exists because of what it stands for and it appeals mainly to Muslims. The ethical financial dimension in which it exists is good for all, and the financial as well as economic ecosystem. Islamic finance, reports a recent PricewaterhouseCoopers (PwC) study, is offered in more than 60 countries with total assets of USD2.6 trillion in 2017. According to MassesGlobal research, takaful assets are around five per cent of this.

However, when promoted not just as insurance, but for its uniqueness, it appeals to everyone. This is something that takaful industry hasn't been doing well and have been focussing by default on just the urban, mid-income Muslims for personal lines and for small, medium and semi-large businesses for commercial lines.

Takaful's popularity has mostly remained the same except that in recent years the rural segments are being targeted in Africa and to a lesser extent in Indonesia as well as Malaysia. Moreover, the cost-effective digitalised solutions have enabled its penetration into the rural segments, but this is only just beginning.

Digitalisation is the one great opportunity for takaful operators to harness in all areas of their operations from the back office to customer facing activities in order to gain timely traction in the fast-changing world of digitisation generally.

Digital Solutions in the Islamic Finance Realm

Reaching out to the masses has never been easier in the digital age than ever before. Digitalisation has brought about positive disruption

“

Digitalisation is the one great opportunity for takaful operators to harness in all areas of their operations...



to the ways we've done things in the past. Digital Society Study reports, by 2020, up to three-quarters of the world will be connected through over 50 billion devices and by 2025 it'll be more than the number of people on our planet.

Thus, the development of insurtech for business-to-business (B2B) and business-to-consumer (B2C) solutions facilitates not only reaching out to 1.7 billion customers at modest income levels, globally, but also four billion people at the lowest income level, globally, who earn between USD4 to less than USD1 per day. For perspective, the World Bank records 100 million people as top earners with income in excess of USD200,000 per annum.

Furthermore, high operating costs that are driven by legacy systems with workflows and servicing issues, frustrate customers and undermine growth as well as profitability. Insurtech is all about reducing costs

and optimising service, resulting in tangible business and customer values. It's based on data science such as big data analytics and cloud computing, that uses artificial Intelligence such as chatbots and algorithms.

Fintech is generally more evolved than insurtech even in conventional finance. Insurtech is currently at the startup phase but developing fast in applications of cost reduction and customer engagement. Takaful industry needs to catch up to harness its benefits. Takaful through insurtech, or taktech as it's becoming known, is a perfect fit because of a mutual structure where their virtual participants fund is available to customers looking to insure risks that can be underwritten with proper safeguards through internet and smartphones.

Still, these are early days and there are several factors that need to

be in place such as governance and regulations, data protection and cyber security. The way forward in this area is for licensed takaful companies to incorporate insurtech into their structure for cost containment, improved efficiency and scale.

Touching on Ethics

What fintech enables, apply to both conventional and Islamic financial systems and provide digitalised solutions to traditional ways of doing things in all areas of business.

Tokenisation through blockchain as a means of investing in assets that otherwise are only available to large institutional investors, opens up possibilities for people to invest directly at the retail level. The use of tokens has made it possible for investors to buy any amount of large assets that involve for example forestry, and to sell at any time, at prevailing market prices. This in turn creates greater interest (demand) in investing in a green ecosystem, enables the build of investor scale and a momentum for faster forestation of the planet.

Ethical solutions through digitisation are facilitated quickly through screening of investments within the ethical paradigms. This encompasses all areas of environment, social and governance (ESG) and embeds ESG risk as well as business best practice factors into stock selection within the principles of shariah and its compliance. The use of algorithms and machine learning maintain the right response to the peer-to-peer (P2P) and B2C needs.

Brushing up Standards

I believe, the industry standards for Islamic finance are set at two levels: at the country level, and across countries, at the industry level.



Now, most companies, both conventional and takaful, have apps for customers to engage them and bring them closer to their product providers.

At the country level, it's the licensing authority of the country with specific regulations on Islamic finance and takaful. They exist in several jurisdictions such as the Gulf Cooperation Council (GCC), Malaysia, Indonesia and Pakistan.

At the industry level, it's namely by, the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), and the Islamic Financial Services Board (IFSB).

IFSB has worked with the Basel Committee to develop their standards to bring consistency across financial markets with the important element of recognising the unique nature of Islamic finance.

A recent adoption by International Monetary Fund (IMF) of IFSB standards, for its assessments from 1 January 2019 to address the

regulation and supervision of Islamic banks, will bring further financial stability into the Islamic banking system. Furthermore, at the industry level, AAOIFI and IFSB standards steer the institutions to incorporate rules and specificities to attain compliance with shariah principles.

Gaps to Fill

One gap that has existed in Islamic finance between the licensing and industry bodies on the one hand, and the institutions on the other, is about shariah rulings and its compliance by institutions driven by their internal shariah advisors. The setting up of national shariah boards or higher shariah authorities has helped to remove this gap to a great extent, but so far, such boards exist only in a few countries.

Another gap is the lack of shariah audit by an external independent body similar to financial auditing.

This approach was developed and promoted by the United Kingdom's Islamic Finance Council and has gained acceptance in several jurisdictions.

Takaful, Now and Beyond

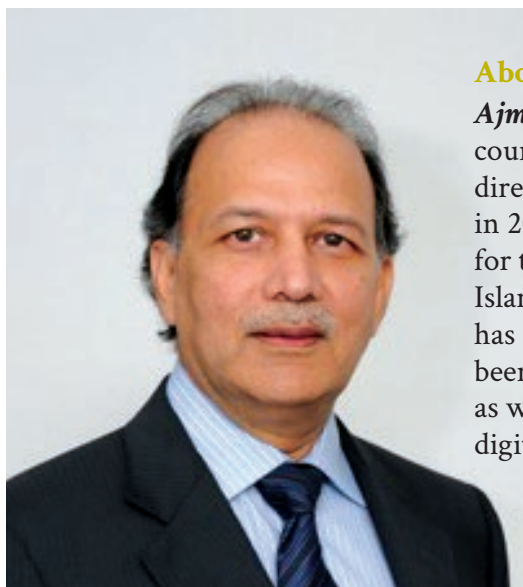
Although change is happening slowly within takaful's realm, it is steady. Now, most companies, both conventional and takaful, have apps for customers to engage them and bring them closer to their product providers. Facultative reinsurance can be placed at a fraction of the time previously needed. Motor and medical segments, which are the most capital-intensive risks, are getting increasing attention and investment, which can lead to better profitability, and perhaps, lower premiums.

There are several insurtechs in conventional finance but none yet

in takaful, at least not in the Middle East. Life insurance penetration in the Middle East is one of the lowest in the world. Vibe is the first AI driven insurtech app being developed for takaful providers that'll help improve penetration rates.

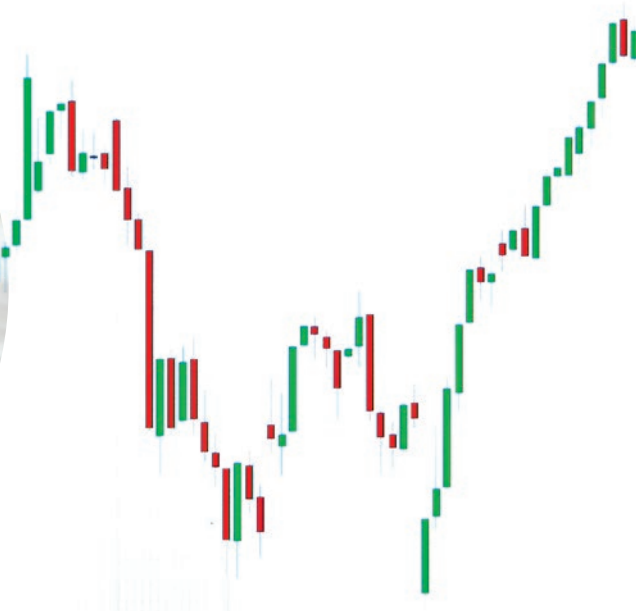
I forecast bright prospects for takaful in the coming years, for two reasons. Firstly, there has been now a considerable learning from what works and doesn't work in the industry. The regulatory environment has been evolving with greater focus on good governance and risk management in building stable, durable businesses. The growing pains of a young industry have resulted in greater activity in mergers and acquisitions for stronger consolidated groups. While the weaker players will be absorbed or disappear.

Secondly, it's the digital factor that'll transform takaful as takaful, and not just as insurance. This encompasses its mutuality and social aspects. The mutual companies in conventional finance have been doing that successfully for decades. There are 16 million Muslims in the EU where banking and insurance penetration is one of the highest in the world – this would be one area to watch out for. Also, Africa is moving fast in takaful and there'll be greater momentum in Pakistan as well as Turkey, plus new markets are likely to emerge such as Afghanistan and Iraq, if peace happens. ■



About the Author

Ajmal Bhatti has managed companies on two continents and several countries. He is presently consulting actuary based in Dubai and managing director of MassesGlobal LLP, a company based in London, established in 2017. Its primary aim is to promote and develop ethical use of money for the common good. Ajmal has extensive experience and knowledge in Islamic finance, serving several boards of finance-related companies. He has in-depth experience in startup ventures and bancassurance and has been involved in offshore global processing centres in Malta, Bermuda as well as India. Ajmal's committed to finding ethical solutions in today's digital age of insurtech and fintech.



M I C R O F I N A N C I N G

Technology has made loans for small businesses very accessible. Branch, a company that has elevated the hassle borrowers as well as financial institutions go through, can give loan approvals and loans in minutes through an app. Here, **Su Aziz** speaks to its CEO.

41 year old Matt Flannery believes that ignorance, sometimes, can be a good thing. Well, it certainly brought him a great deal of good. A graduate of Stanford University, Matt admitted to not knowing much about microfinancing when he co-founded Kiva in 2004 with Jessica Jackley. It's a non-profit microfinance organisation that allows people to lend money through the internet to low income entrepreneurs and students in over 80 countries, and he was its CEO for a decade.

Currently, he's the CEO of Branch International which is a financial services company and has been referred to as a 'branchless bank'. 'While Branch does operate in what some refer to as a microfinance space, it's a term that we find that's often associated with different business or non-profit models, and so not one that we typically use to describe our business,' explains Matt. Basically, Branch makes small personal loans between USD2.50 to USD500 to people in countries such as Kenya, Tanzania and Nigeria through their android phones.



Can Microfinance Significantly Reduce Poverty?

The Branch app searches a borrower's phone thoroughly for personal data such as texts, calls and contact lists to determine that he or she is credit-worthy. 'Branch normally give 12-month loans with an annual percentage rate (APR) of 12 per cent. We hold the loans on its own balance sheet and we don't securitise them.'

Small and medium enterprises, according to The World Bank, fill the infrastructure gap in fragile countries such as those recovering and reconstructing in war-torn areas. However, there's often insufficient public sector funding and, not to mention, disinterest from large private sector firms. In fact, in these countries, SMEs make up quite a substantial share of the private sector and may play a fundamental role in filling the infrastructure services gap.

Therefore, microfinance, which exploits technology, plays an important role, particularly with the small businesses of these communities. Here, Matt answers some questions on this.

Microfinance is a wonderful industry focused on providing financial services such as savings, loans, insurance and the like to those previously excluded. These services play a key role in lifting entire populations out of poverty. Micro financial institutions (MFIs) have spread rapidly across the globe since the 1970s and to date, they serve hundreds of millions of people. They've relatively low default rates and are loved by communities around the world. However, it's an unfortunate exaggeration to say that MFIs alone can single-handedly eradicate poverty in a population, they're just part of the puzzle. We also believe that financial access and liquidity for both consumer and business, is generally a good thing. This is also why central bankers around the globe have digital financial inclusion on their radar. It helps increase GDP growth and household income.

Technology is changing the way institutions and companies provide financial services

How Can Microfinance Compete with Informal Money Lenders?

For centuries, informal money lenders have played a key role in increasing access to capital, when it's needed the most. Let's not forget why they've been necessary! However, we're now at a key point in history when formal services can penetrate the hardest to reach places on earth, thanks to technology and

the increased usage of mobile devices. Branch provides borrowers in Africa the modern services they deserve. What's more, people like Branch because it's fast, affordable, private and we're transparent.

Financial technology services such as Branch have fundamentally changed how customers in these markets can access credit, you can get a loan in just minutes with no hassle. With us, you simply download an app, sign up and get a loan directly to your mobile money or bank account.

How has Technology Helped?

Traditionally, MFIs struggle to contain operational costs. It's costly to ride a motorcycle every week to villages that are hours outside of a city, just to provide a USD50 loan. We can lower the costs because people are reachable through mobile by using cutting edge data science and leveraging a mobile platform. In this way, we're able to dramatically reduce the cost of delivering financial services in emerging markets.

Technology is changing the way institutions and companies provide financial services and is changing the way that customers access financial services. At Branch, our financial services use a proprietary machine learning algorithm to make lending decisions. This is a huge benefit to customers and allows us to offer faster access to credit as well as capital, at lower costs. With our simple to use app, customers can apply for a loan in under a minute. Plus, we require no paperwork or guarantors.

With the explicit permission of our customers, we use data science to analyse smartphone data to determine loan eligibility. This is also how we manage risks. Our machine learning

algorithms process thousands of data points to create personalised loan options in a matter of seconds.

This year, Branch announced its USD70 million Series B investment, which we'll use to expand our financial offerings and move into additional countries, including India later in 2018. Trinity Ventures led the investment with other participants including Victory Park, International Finance Corporation, Andreessen Horowitz and CreditEase Fintech Investment Fund. The Series B brings Branch's total investment to USD80 million in the three years since it started.

We're a balance sheet lender and have also financed our loan book via local commercial paper issuance and a USD-denominated receivables financing facility. As we scale, we may consider off-balance sheet financing arrangements to diversify our funding sources and offer a wider range of investors the opportunity to invest in Branch credit.

How Do You Measure Effectiveness?

We measure the effectiveness of our products and the value that our products bring to our customers through customer satisfaction, retention, default rates and brand awareness. We believe that our rapid growth speaks for itself – we have more than two million users and are on track to disburse more than USD250 million in 2018 alone.

Word of mouth contributes to over 45 per cent of our customer base. Our customers are our biggest campaigners since we've given them a way to improve their lives through funds to grow or start their business as well as for other key expenses. Branch is able to serve more people at scale and provide a world class experience to borrowers. I think the reason customers have come to love Branch, is really because of the product we build and the experience it gives.

Matt's Last Words on Microfinance

We're seeing an 'emerging middle class' taking root in cities around the world. It's exciting. Commercial financial institutions like Branch can serve this segment with increasingly efficient and low-cost services. However, there'll always be a segment of any population that's unreachable by commercial services. For that segment, humanitarian microfinance is an appropriate intervention.

In the United States, we have MFIs in almost every city helping with financial education and subsidised financial services. ■

Matt Flannery's top three advice to startups:

1. Do something you love.
2. Start fast, start now.
3. Know your customer, deeply.



BRINGING WATER TO THE DESERT

Technology may be the only way to secure the future of water. Founder of SunGlacier explains his artistic fusion with technology that finds solutions for climate change. **Samar Al-Montser** reports.



Water supply shortages are no longer problems restricted to underdeveloped countries. Climate change has been an ever-growing concern over recent decades, especially for 54-year-old Dutch artist and founder of SunGlacier, Ap Verheggen. Based in the Netherlands, Ap seeks to address issues of climate change by mixing art and technology in his inventions and sculptures. He's attempting to decentralise the production of water from the air in hot climates to help solve climate change issues.

Before his SunGlacier project, as a sculptor and designer, Ap made huge art installations and built one of Europe's largest bronze sculptures for Shell. The Terra Incognita, located at the Shell EPiCentre in Rijswijk, the Netherlands, stands as seven bronze sculptures of 3.60 metres high, each representing a continent. He believes that his passion for his art work gives him an open mind to help generate new ideas.

His awareness of the need to solve climate change issues began from a journey he took through the Arctic

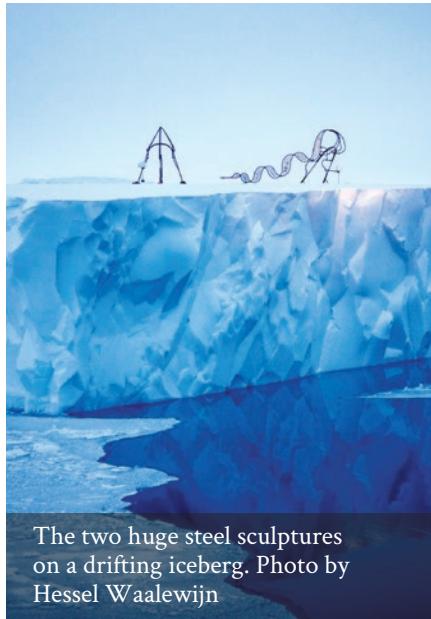
in the early 90's. What he witnessed made him realise that climate change was happening very rapidly. 'Midwinter it could suddenly start to rain, while midsummer we once got stuck in the sea-ice,' he recalls. Since then, Ap has been inventing ways to utilise the sun's energy to produce water.

Beginnings of SunGlacier

In 2010, he started the SunGlacier project, after creating two huge steel sculptures equipped with a GPS system that he set out to place on a drifting iceberg in the North of Greenland. He wanted to raise awareness and allow everybody to follow the voyage of the sculptures. 'People got to see the impact of Arctic climate change in a new way and actually witnessed it,' he says. Due to this, Ap was appointed as UNESCO-IHE cultural ambassador, which is the water education centre for the United Nations.

At the time, people were just beginning to realise the impact of climate change. Scientists calculated that an iceberg with that size would drift for at least two years, but because of the exceptionally high temperatures, which was over 20 degrees Celsius instead of the average -20 degrees Celsius, the iceberg exploded after a journey of only two months.

Ap then decided to experiment with solutions focused on helping those suffering from water shortages in hot climates. His first real SunGlacier installation was built in 2016 for an exhibition at the Beelden aan Zee museum, Scheveningen, The Netherlands. 'I designed a large fountain from wood that collected in its base the harvested water from the air. The installation was powered by the energy of two solar panels. When the water reservoir was filled with water, it was pumped with a huge force out of the top of the sculpture,' he says.



The two huge steel sculptures on a drifting iceberg. Photo by Hessel Waalewijn

Water for Hot Climates

'Many machines together can harvest a lot of water from the air. A lot of buckets a day means a filled water tank in a week,' he says. This has been successful, especially in Mali, the hottest and driest place on earth. That's where the Dutch ministry sent Ap and his team to test their idea in 2017. Using only solar energy, it was probably the world's first artificial water well to work entirely off the grid. Since 2014, Ap and his team have built over 50 different prototypes of the SunGlacier technology that harvest water from air in different climates. They've also experimented with this water from air technology in Dubai and Oman. 'It may sound weird but even in the world's driest deserts, there's water in the air,' he says.



Artist and founder of SunGlacier, Ap Verheggen. Photo by Ronald van der Horst



SunGlacier DC03 based on Peltier technology



The Terra Incognita, at the Shell EPiCentre, The Netherlands

SunGlacier DC01 at the Beelden aan Zee museum, The Netherlands.
Photo by Ronald van der Horst



It's Sustainable Too

While many water sources produce water from a well which dries up lands, SunGlacier doesn't. 'The water that we produce isn't pulled out of the system. Pumping water out of a well, for example, is gone forever. In the long term, empty means empty. We prefer off-grid water production. So, for reasons of water transport we certainly help reduce climate change,' he assures. Through his experiments, Ap has learned that conventional technology stops running efficiently when temperatures rise to 35 degree Celsius. 'That's why we invented a complete and new technology that even runs when temperatures hit 50 degree Celsius, in a cork-dry climate. Our limitation is below three per cent relative humidity,' he explains.



SunGlacier in Mali. Photo by Hessel Waalewijn

Quality Water and Efficiency

His latest machine, TM01, harvests water in a 24-hour cycle with solar energy. 'We don't produce any gasses,' he says. It uses all free natural elements such as air, sunshine and gravity. With the condensation method, he created the world's most efficient water producing way so water doesn't evaporate in the process. 'This new innovative technology is patent-pending and is expected to spread within a couple of years,' he says. The water quality may sound comparable but according to Ap, it's cleaner than the rain that drops thousands of metres from the sky. 'We're now able to harvest buckets of water in a much wider climate range. It's always spectacular to see the amount of water growing,' he says.

Environmental Impact and Future Inventions

'The water that we produce will mainly be used for drinking water or for agriculture. The water cycles for a human are very short and plants evaporate 90 per cent of their water. So, in that sense, the water we produce is borrowed for a short term from nature,' he explains. For Ap, he wants to satisfy his futuristic ideas of growing crops in places where nobody can live. SunGlacier is now searching for companies that are interested in optimising the SunGlacier technology like Ap's DC03 to produce water from air. 'It's now time to take the next steps in realising our initial goal: cheap drinking water for everybody, everywhere,' he ends. ■

HALAL TOURISM EVIDENCES



Japan's popular with Muslim tourists. With the Tokyo Olympic Games in 2020, there'll be more. Halal certification for food is instrumental in encouraging the increase but, as in other countries, there are no standard regulations for it in Japan. *Su Aziz* writes.



In Tokyo, as you cross the busy cross junction outside Shibuya station, you can't help but notice a sea of predominantly dark-hair on fair-skinned faces with commonly long narrow eyes or, what the Japanese describe these faces as, *shouyugao*, *misogao* or *satougao*, to name a few. Then, after a blink or two, you'll spot what is obviously a contrast – the tourist. Chances are, a colourful headscarf has caught your attention and you marvel at how often this happens in the busy streets of Japan's capital city. It marks the advent of Muslim tourists and in the past few years, Japan has remained on the top of their list of countries to visit.

It has been reported that Japan's popularity among Muslim tourists will increase. *The Jakarta Post* reports 700,000 Muslim tourists to Japan in 2017, of which 27 per cent were from Indonesia. According to MasterCard-CrescentRating Japan Muslim Travel Index (JMTI) 2017, there'll be an increase of a million Muslim tourists to Japan in 2018. This is in line with Japan's aim to increase their tourist numbers to 40 million by 2020, the year of the Olympics in Tokyo. With Muslims making up one-fourth of the world population, it makes sense to appeal to their wanderlust.

In that respect, Halal Media Japan Co., a media company providing Muslim-friendly information such as prayer space, halal food, products and such, contribute to Japan's popularity with Muslim tourists. 'We encourage companies and our local government to promote halal products and welcome more Muslim tourists to the country. We're responsible for giving advice to restaurants and shops on how to approach Muslim customers,' explains Akihiro Shugo who is the co-founder of Halal Media Japan.

Bowl of ramen, an ubiquitous Japanese meal: Photo by Miguel Maldonado

Halal Media Japan was started in 2014 due to the demand for information in English or other languages from Japan, despite the rapid increase of foreign tourists. 'Besides Muslims making up four to five per cent of tourists to Japan now, immigrants from Muslim countries were also increasing in the country then. Thus, the need for this type of information was urgent and, of course, indispensable,' Akihiko adds.

Today, Halal Media Japan is a big contributor to the increasing numbers of Muslim-friendly restaurants in the country. 'We also disseminate exact and valid information to Muslim customers. Thus, making our responsibility quite considerable.' Seeing the steady increase of Muslim tourists to Japan, it must be doing something right. So, how are the Japanese doing it? Akihiro explains.

increase of 32.1 per cent in 2016 of Indonesian tourists to the country, as compared to the year before.

This adds up since Indonesia has the biggest Muslim population in the world at around 209 million out of the 1.8 billion global Muslim population. Globally, Muslims make up or around 24 per cent of the total world population worldwide just two years ago.

What's more, Muslims were forecasted to grow faster than other global population. Hence, a fast-growing market for halal products and this is reflected in the value of halal products in 2016 of around USD45.3 billion and is expected to grow by around 29 per cent in 2020.

While Muslim tourist numbers increase globally, demand for other Muslim-friendly products is on the rise too. According to *Statista*, the online statistics, market research and

Japanese Perceptions of Halal

'The Japanese people perceive halal as only for Muslims,' says Akihiko. 'They also think halal food doesn't taste as good as non-halal food. But this is changing as there's more understanding on the matter, today.' Generally, food in Japan is non-halal. 'For example, seasoning such as *mirin* the rice wine which is a key ingredient for teriyaki sauce, is alcohol-based. Also, the Japanese add alcohol to miso or soy sauce, as preservative.'

This is where Media Halal Japan comes in. Akihiko explains, 'We introduce halal ingredients in Japan such as non-alcoholic seasoning or make available imported halal products in the supermarkets. And tell them how to get these ingredients at a lower cost.' This is because, generally, halal certified food and products cost more. Hence, their limited availability in Japan.

Setting Regulations

The Japanese Times reports that currently, there are no set regulations on the issuance of halal certificates for products and facilities in Japan. Standards vary depending on the organisation that issues a certificate. 'There are no regulators and issuers of halal certificate in Japan's public sector. The halal certification body is basically a private one and because of this, theoretically, anybody can issue it in Japan,' confirmed Akihiro. 'Hence, it's tough to identify the number of companies that are halal certified in Japan.'

Although, as a rule of thumb to follow, a Malaysian newspaper, *The Star*, reports that 'to be halal-certified, products mustn't contain traces of pork, alcohol or blood, and must be made on factory lines free of contamination risk'.



The busy cross-junction outside of Shibuya station

Accommodating Halal Practice

First up, Akihiro explains that proper accommodations for the Muslim tourists have to be made. A large number of them are from Indonesia. The Japan National Tourism Organization (JNTO) reported an

business intelligence portal, halal food had a global market value of approximately USD1.4 trillion in 2017 and this number is expected rise to USD2.6 trillion in 2023.



Geisha, a recognised Japanese element and tradition: Photo by Philippe

A few Japanese companies that are halal certified include Yakult, which is a cultured milk drink containing probiotics bacteria. It was certified halal by Jabatan Kemajuan Islam Malaysia (JAKIM) and has a special halal committee to scrutinise every aspect of the halal regulations to ensure that all requirements are stringently adhered to. Then there is Tugba Trading which is a full-pledged trading company that imports and sells Turkish products in Japan such as ice cream, and then there are eateries such as a kebab shop as well as Mrs Istanbul at Haneda Airport Terminal 2 in Tokyo.

Other brands producing edible products that have followed the halal route include Origami Asakusa which is a halal Japanese restaurant in Tokyo serving authentic Japanese dishes and wagyu beef. Also, Yamadaya which is a confectionery company, CoCoICHIBANYA which

is a curry rice restaurant chain in Japan and Royal Co. that produces, conveniently, frozen halal bento.

Akihiro believes there should be better, if not stricter guidelines for halal certification globally as well as in Japan. 'For those who enter into the halal industry, it's confusing to be surrounded by many regulations for halal certification. But we're now being Muslim-friendly by disclosing information through a website, halalgourmet.jp. It allows visitors or customers to choose the options relevant to them,' he says and feels that a unified national halal standard can be achieved in Japan if the public sector announces the regulations for it, officially.

Last Words

The need for halal certification or at least regulated issuance of halal certification caters to not only tourists but also residents of the country. Akihiko admits that there are no official numbers of the number of Muslims currently living in Japan, 'It's because we don't refer record religion on Japanese identification documents. So, no one has a record of the exact number of Muslims living in Japan but the estimate is between 100,000 and 200,000 and this includes 10,000 to 20,000 of Japanese Muslims.'

Malaysian media reports on the Japanese government is looking to Malaysia, whose halal industry contributes more than 8.5 per cent to its GDP, for expertise and advice to upgrade its own knowledge in the halal segment. This is part of Japan's extensive preparation for the Tokyo Olympic Games in 2020. It's when Japan's expecting an influx of Muslim visitors.

Positive statistics of Muslim tourists to Japan has encouraged its halal industry to improve and progress. Japan's efforts are very much valued by Muslim tourists. How do we know this? Because it's ranked as the fourth Muslim-friendly country in the world,' says Akihiko. The ranking, undoubtedly, has been hard-earned for this industrious non-Muslim country of over 127 million people. Who knows, Japan might just lead the way to standardising halal certification regulations for the rest of the world. 'Only time will tell,' concludes Akihiko with a small, knowing smile. ■



Japan ranked as fourth Muslim-friendly country in the world.

Visitors from Indonesia to Japan up by 32.1 per cent in 2016 compared to 2015.
source: Japan National Tourism Organisation



60% per cent of Muslim tourists to Japan were from Southeast Asia in 2016 and of which 27% were from Indonesia.

source: The Jakarta Post



Indonesia, largest Muslim population globally: 11.5 per cent of 1.8 billion in 2017.

source: Pew Research Center



A STRATEGIC WORKSHOP

The three-day WIEF Women Entrepreneurs Strategic Workshop provided 30 businesswomen with tools to grow their business and more. **Samar Al-Montser** reports.



30 businesswomen, who were participants, joined the WIEF Women Entrepreneurs Strategic Workshop on 28 – 30 August 2018 to learn how to better understand their own businesses and grow. Held at Tamu Hotel and Suites in Kuala Lumpur, the three-day workshop was organised by WIEF Businesswomen Network (WBN) and supported by Serba Dinamik Holdings Berhad.

It started with industrial visits to two different businesses: a Malaysian satellite TV station, Astro Awani, and a family-owned business, Royal Selangor. The remaining days were led by business expert and experienced trainer, Goh Ai Yat, and various entrepreneurs who shared their entrepreneurial experience.

Astro Awani and Royal Selangor

At Astro Awani, Shamir Hameed, assistant vice president of Astro Awani's marketing and business development department, took the participants behind the scenes to show how the team worked. Shamir mentioned how people's attention span was limited and how Astro marketed themselves with that in mind. 'We reduced news into shorter durations and put it on the web to easily grab people's attention and convey the message,' he explained. He also talked about the need to monitor audience response and trends in order to determine the next steps in business.

Royal Selangor is the largest pewter manufacturer and retailer in the world. Their factory museum showcased the different stages of their production and handcrafting processes which some participants got to try. Their museum showed how the founder, Yong Koon, started the company in 1885. Till

today, Royal Selangor takes pride in handcrafted work to attain the desired finish and quality of their products.

Through these two visits, the participants got a closer look at how two very different businesses became successful: the TV business became more relevant to today's consumer market and how rewarding it is for a family-owned business to preserve a craft.

DRAWING IS THINKING

Business Learning Tools

Trainer, coach and business expert, Goh Ai Yat, worked with the participants on how to rethink their business models. Ai Yat, demonstrated how visual thinking is a neurobiological-based approach that combines the human's highly-developed verbal mind with the neglected but incredibly powerful visual mind, by combining illustrations and words to create a visual record. Among the many stages involved in this process was to create a value proposition and a proper pricing structure. 'Drawing is thinking,' Ai Yat said, as she showed the participants how business illustrations helped spark creativity in business thinking.

Stress Management

Sharmini Henson, life coach and founder of LifeWorks, advised participants how to manage work stress to keep healthy. She explained how to filter thoughts and be aware of biases, beliefs, values, cultural contexts and other factors to help think out problems. 'Many women tend to become more aggressive

in order to match their male counterpart traits in the workplace which don't help women manage themselves and their emotions well,' she said.

Offline and Online Marketing

Guest speaker, Camelia Tan Sri Ya'acob, the CEO of Rootwommers Sdn Bhd, focused on how often communication barriers held people back such as lack of attention, cultural differences, expectations, judgments and different viewpoints. 'Overcoming barriers is first and key to beginning marketing,' she said. Camelia reminded the participants that the way to think about marketing is that it's never about you, but it's always about your business.

To add more to the digital marketing side, Angeline Ann Samuel, marketing specialist and managing director as well as founder of A Tech International, spoke about how to set realistic marketing goals. 'It's crucial for any business to stay active especially on social media, at least posting something once a day,' she said.

Growing Your Business

Vice president of communications and stakeholder management of EXIM Bank, Baharuddin Muslim, also reminded the women that there were avenues for funding out there. 'Malaysia isn't big enough. If you export, the marketing opportunity is 10 times more, but the risk is also 10 times more,' he said. Dato' Dr Ir Haji Mohd Abdul Karim Abdullah, who is group CEO of Serba Dinamik Holdings Berhad, Malaysia, impressed on the need to uphold one's values throughout the lifespan and journey of the business. 'Success is a journey, not a destination,' he said. ■



Business expert and trainer, Goh Ai Yat's tips on how to visualise and identify a problem through six visual pathways to trigger a visual equation that presents an opportunity or solution to a problem:



WHEN

The pathway detects changes in objects and their positions over time and provides time-based structure to the visible world.

HOW

The pathway combines all previous pathways and provides the cause and effect structure to the visible world.

WHY

The pathway was the highest level of cognition that deduces and projects the rules based on what was seen.

WHAT

The pathway identifies physical objects seen in the business and assigns names and categories.

COUNTING

The pathway counts and clumps the objects into rough categories.

WHERE

The pathway detects positions and overlaps of objects and determines proximity to self.

The Future of QUANTUM COMPUTERS

Experts at the 2018 WIEF Global Discourse on Quantum Computing in Kuala Lumpur discussed the future of quantum computing. *Samar Al-Montser* summarises.

It's not easy to explain something that only existed as a concept and in one's imagination but now quantum computers do exist. At the WIEF Global Discourse on Quantum Computing, which happened on 20 September 2018 in Kuala Lumpur, quantum computing experts discussed its uses and its development over the years.

One of the experts was vice president and chief technology officer of IBM systems, Asia Pacific, Christian Raetzsch. Originally from Austria, Christian lived in more than 50 countries throughout his 30-year career with IBM and was very excited about the next chapters in quantum computing technologies.

The other expert was a theoretical physicist from Ireland, assistant professor at the Singapore University of Technology and Design, Dr Joseph Fitzsimons. His research interests

focused on quantum mechanics and how to enhance the security of networked computation. During the Global Discourse he used his fondness for illustrations to explain the developments of quantum computing through the years.

Qubits & Quantum Computing

Dr Joseph started working on quantum computing as a PhD student in 2004. 'At the time, things looked very good in terms of the growth of the number of qubits but progress was slow' he said. Qubits are the simplest unit of quantum information which are equivalent to a large number of bits of conventional computers.

He noticed that between 2016 and 2018 there was a massive leap in the growth of the number of qubits that increased at consistent intervals. 'The scale of number of qubits in the devices that were announced doubled every six months. This was because

the level of noise in the device being built decreased overtime and the length a qubit could go without an error increased,' he said.

The noise in the quantum computing machine happened because of the very low temperatures the computer operated in and needed to maintain the state of the qubit. 'IBM's quantum computer is basically a refrigerator which operates at very cold temperatures to maintain the state of the qubit. This is why it makes a lot of noise,' Christian explained. The machine's level of noise was a problem because it caused the error that affected the quantum computing process.

Christian explained that in order to gain advantage of the larger or increased number of qubits, the error rates or noise must be decreased below a certain level or threshold. Dr Joseph pointed out that we're entering a regime where the quantum noise is low enough in a quantum computer that we can actively correct those errors as they occur. 'Rather than leaving the device hoping no error would occur, you can actually

About WIEF Global Discourse

WIEF Global Discourse Series is under WIEF Education Trust (WET) and provides an opportunity to discuss and exchange new ideas relating to science and technology between experts, academicians, researchers, professionals, industrialists and students.



Watch the full video of the WIEF Global Discourse on Quantum Computing

The IBM quantum experience allows the public to access:

Quantum systems ranging from **5 to 6 qubits**.

An open source framework for quantum computing and quantum information science development kit, called Qiskit, for people to access quantum processors.

Qiskit's other features like Qiskit Aqua which is a quantum algorithm library that helps for an easy programming experience.

6M experiments have been carried out on the IBM experience.

120 papers on the topic have been published.

intervene and suppress the errors as they occur. This is something called the fault-tolerance threshold,' he said.

Dr Joseph believed that quantum computers have tracked very closely to the development of early computers. 'There are a couple of things that we haven't done yet, in order to get to the bigger advances that occurred many years ago in conventional computers. For example, we currently don't have

any real study of data structures for quantum computers. We discovered one data structure and it opened up a whole range of applications in machinery. There's certainly more,' he said.

Some of the possible uses of quantum computing mentioned by the experts include helping people understand and simulate chemistry, high energy physics and accelerate mathematical functions. 'We also think they're useful for optimisation problems,' Dr Joseph added.

IBM's Possibilities

Christian elaborated on the quantum computers that IBM created. In August 2016, IBM created their very first quantum computer which was made available to the public over the internet. 'Everybody can now access IBM's quantum processors via the Cloud, experience how this technology works, do experiments and see how this can build possibilities for advantages,' he said.

IBM's development of quantum computing has been an investment of more than 50 years and in 2017, IBM started partnerships with corporations to accelerate research and launch commercial applications and prepare companies for its use cases. The biggest commercially accessible IBM quantum computer was 20 qubits but IBM is currently developing 50-qubit machines in their lab.

Nature doesn't work with 0s and 1s which is how traditional computers or super computers work...

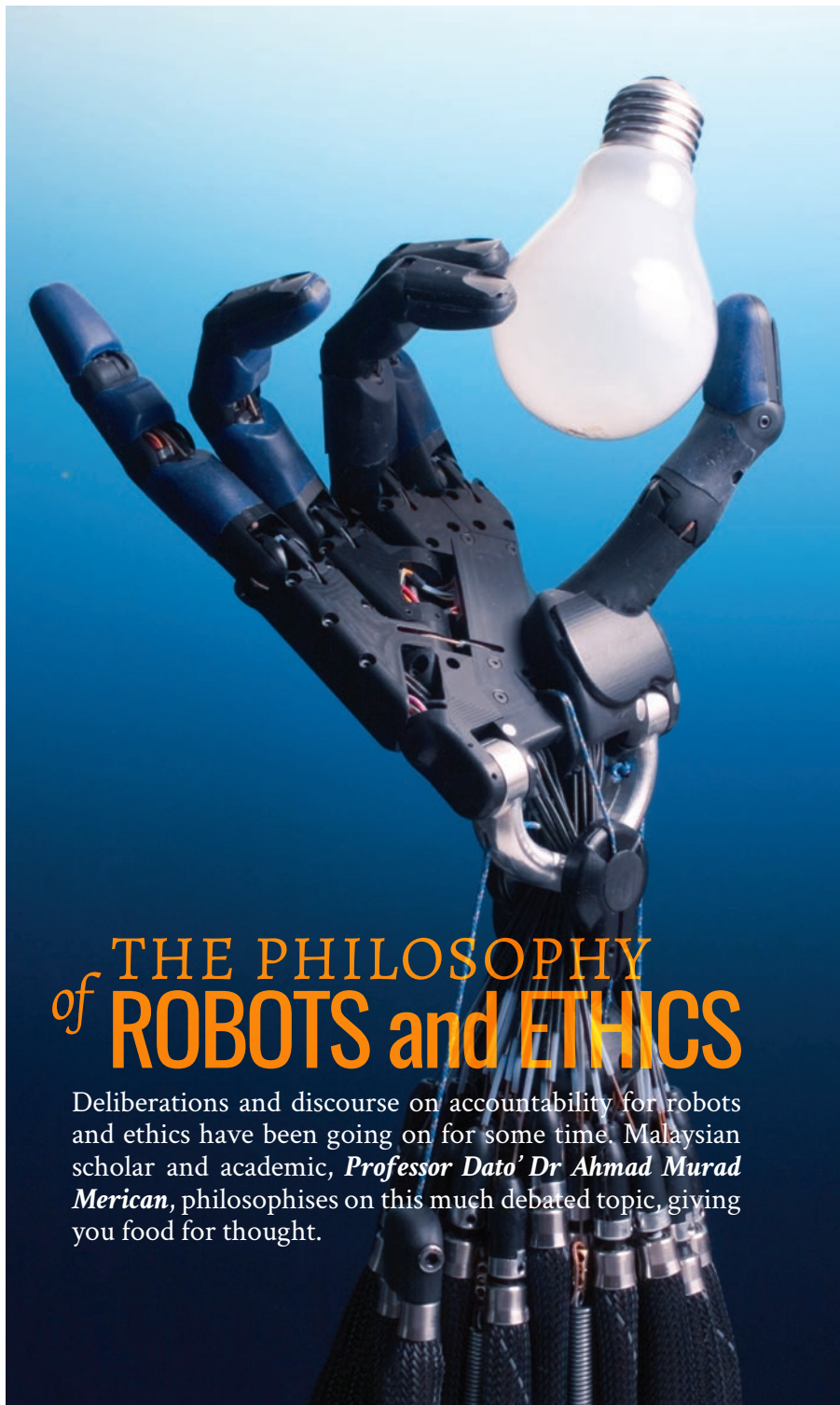
“

Christian believed quantum computing would open doors conventional computers would never be able to open especially in helping humans understand and simulate nature. This was because of the way nature worked and how conventional computers are not wired to make sense of it. 'Nature doesn't work with

0s and 1s which is how traditional computers or super computers work,' he explained.

Christian believed that we're not too far off from quantum advantage and that we're quantum ready. 'We need to think in quantum terms, it's absolutely essential to keep an open source and advance use cases for real life,' he added. Christian didn't believe there was a need today for everybody to build their own quantum computer. This is because of the immense amounts of research and materials required. 'Very few companies can do that at all,' he said.

According to Dr Joseph, we're only scratching the surface when it comes to the applications of quantum computers. He believed that whatever the future expectations of the potential of quantum computers are, people will never know for certain the truth of what's to come. 'The predictions we make now [about the future of quantum computers] will be wrong no matter what we say,' Dr Joseph concluded. ■



THE PHILOSOPHY of ROBOTS and ETHICS

Deliberations and discourse on accountability for robots and ethics have been going on for some time. Malaysian scholar and academic, *Professor Dato' Dr Ahmad Murad Merican*, philosophises on this much debated topic, giving you food for thought.

Recently, I was presented with a dilemma: A child runs onto the road and the self-driving car has no time to stop, but it can choose to swerve and hit an elderly person. What should it do and who gets to make that decision?

A quick response: If autonomous vehicles are the future, its 'perfect' efficacy depends on other autonomous objects – in both the tangible and the intangible. It's the re-learning of humanity and a re-understanding of what it means to be human. The self-driving car takes its image in the human being – it operates through AI. But the technology hasn't reached the stage of a matured human being, or a wise one at that.

What we have is primitive AI. In that context, the programming of choice reflects an immature system, operating at an 'infant' stage at that. But the car should (still try to) stop upon sensing an object, instead of swerving. Self-driving vehicles are only effective when it behaves human-like with appropriate sensors in place, that is able to contextualise the environment, and driven by deep and higher-level AI. The car should be built in our own image. That's only very human for any autonomous objects we create.



Robots and Code of Ethics

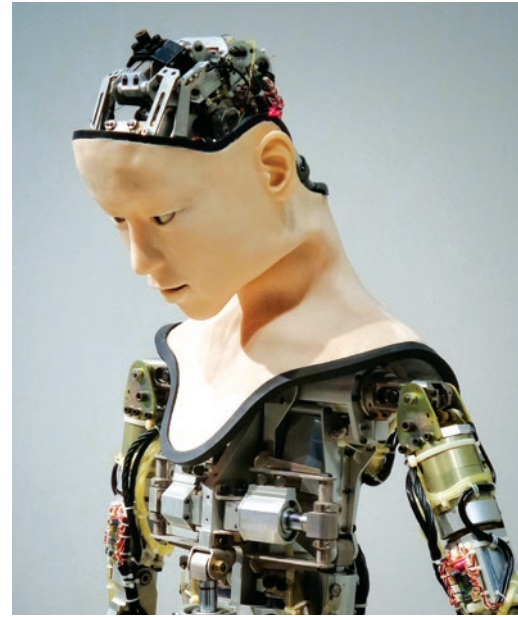
It is not robots, but human beings that need a code of ethics. Here, man plays the role of creator. If we notice the name of the robot that has gained popularity over recent months and is associated with the Fourth Industrial Revolution, Sophia, we'd be able to imagine the imagination of its creators.

Why is the name 'Sophia' given to the robot? This is because despite the vast potential that a robot could do, can the robot be programmed to be wise? The term 'sophia' is derived from the Greek philosophia or philosophy where 'philo' means 'love' and 'sophia' means 'wisdom'. So, 'sophia' is that ideal for wisdom imagined by man.

But then, can a robot be wise? The second concern is the spirit and the soul. If we remember Ray Kurzweil's books, *The Singularity Is Near: When Humans Transcend Biology* (2005) about AI, and the future of humanity built on ideas from *The Age of Spiritual Machines* (1999). Kurzweil imagines that machine intelligence would be more powerful than human intelligence and at some point, these will merge. These are indeed powerful ideas having ramifications on ethics and morality.

Addressing Ethical Issues

We've arrived at the stage of advancement which is essentially the cognitive revolution. We've to engage in the meaning of logic and rationality. Certainly, that has transformed over the last three decades. Now, we're both object and subject. The robot, or any invention that imitates such a set of behaviours, isn't only our object of desire, but also reflects us being the subject of that object. The issue of agency and morality of purpose.



Therefore, we need to handle three elements:

1. The multi-faceted, deeply interconnected world that we live in
2. The breadth and depth of multiple technologies, the so-called robot may take on different meanings for us.
3. We must remember that robots don't stand alone, it's a system, having systemic impact across and within societies, groups, communities, cultures, countries, companies, industries, governments, regions and such.

“

**Robots are
lifeless creations.
We give ‘life’ and
‘agency’ to it.**



Why we must address these issues is simply due to its vast, ‘apparently infinite’ fluidity of man. But we must also think of our collusion with the Sacred and the Transcendent. We must remember that the complexities lie in the contradictions of its origin and purpose.

Robots are lifeless creations. We give ‘life’ and ‘agency’ to it. Robots in fact have no life and no soul. It doesn’t control us. We control the machines that we create. The machines are the extension of ourselves – raw power to our biology and nervous systems to our thoughts. Man is suggesting that machines can learn and reflect. Humanity should be within us, not within our machines.

Guiding Responsible Technology

Perhaps those in the humanities can play a role in guiding responsible technology. They deal with the abstract, with the conceptual and border on the reality or imagination matrix. This is because humanities form part of a sweeping arc of human learning. Humanities is able to provide the spiritual, moral and ethical dimensions to the conceptualisation and use of technology because it bears a peculiar relationship to the world – they are in the world, but not entirely of it.

Interdisciplinarity isn’t merely an approach and a method. It represents an ethical commitment to promoting a diversity of perspectives – to engaging in productive, if properly contentious, conversations between disciplines. The humanities may be posited as a transdisciplinary realm and currently much intertwined technology – at the scientific and popular levels. The humanities shape

technology, and vice versa. For example, poets illuminate the world with images and metaphors that are distant from daily discourse, but nevertheless uncover the imaginative and verbal intensity that lies concealed in technology and things.

For industry, organisations and government, an ethics advisory panel is critical for present conditions and the future – the social, political, at the national, regional and global levels are interconnected. Big data superhighway is a machine unto itself. These have to be managed in both micro and macro terms. A group of people, comprising philosophers, those in the cultural, social and legal sciences, philosophers and historians of science should lead. Policy makers and formulators, legislators, manufacturers and technologists, parliamentarians can be integral to the mechanism.

Furthermore, the media, both traditional and digital, can present a proper discourse. All views of machines and ethics should be discussed and debated at all levels. Society needs to know and be provided with critical insights on machines and robots, and how we can be engaged in developing a better tomorrow.

Influence of Robots on Human Behaviour

There'll continue to be more interface with technology being in the human system. We need new ways of looking at technology and machines. The boundaries are extended beyond the conventional. Now, the environment is online and the machine is the environment. Beings, minds and technologies are interconnected. The experience of reading words on a networked computer, whether it's a PC or an iPhone, is very different from the

experience of reading the same words in a book or a newspaper. These are robots and machines.

As a technology, a book focuses our attention, isolates us from the myriad distractions that fill our everyday lives. A network computer does precisely the opposite. It's designed to scatter our attention. It doesn't shield us from environmental distractions, it adds to them. The words on a computer screen exist in a welter of contending stimuli. The human brain adapts readily to its environment.

The adaptation occurs at a deep biological level, in the way our nerve cells or neurons connect. What we see changes who we are. That's how manufacturers and designers would have to assume and structure the foundations of their thoughts and actions. Morality is based on our senses and it's blind without spirituality.

Last Words

These are machines that reflect humanity and the consciousness of man. Machines like robots, gather, store and share information – these are critical to our social, intellectual and spiritual environments because they play important roles in shaping our modes of thoughts. A glance in the course of intellectual history shows our thinking habits have shifted dramatically.

We don't need new ethics, but new ways of approaching ethics in the interface between man and machines. Rationality isn't the rationality that we use to know. Logic isn't the logic that we're used to be conditioned in. Our individual intellect and collective culture become part of the complex system of man-machine interface. That is where we adapt and inter-operate. ■



About the Author

Professor Dato' Dr Ahmad Murad Merican has been an academic since 1986 with interests in the fields of media and journalism studies, intellectual history, as well as the history and philosophy of science. He is attached to the Centre for Policy Research and International Studies (CenPRIS) at Universiti Sains Malaysia in Penang. He is an author of 12 books and regularly writes for the Malaysian media.



Ignoring the heat and bustle of America's City of Angels and bent over a desk holding multiple computer screens, facial muscles rigid in concentration, is 34-year-old Taryn Southern. At the time of writing this article, she's working with four different AI music composition tools – AIVA, Amper Music, Google's Magenta and IBM's Watson Beat – to compose her latest album, *I Am AI*.

'I've always considered myself a musician hobbyist. It's my side hustle, I do it because I love it!' Taryn confesses. 'I was an actress and TV host for five to six years before I started a YouTube channel and a digital production company. So, music is something I always incorporate into my work. Now I'm directing my first feature. It's a documentary on the future of man and machine, while working on *I Am AI* album on nights and weekends.'

Taryn's album consists of eight tracks, although, in total, she has composed 14 songs with AI. The first single from the album is *Break Free*, out in 2017. Funnily enough, hardly anyone has been able to discern the difference between AI-composed music and human-composed music. 'A lot of people comment they can't tell the difference. Although, I think a lot of people feel threatened by the idea of AI composing music. Creativity has always been believed to be sacred to us but the reality is that creativity is quite simply something experienced by the eye of a beholder.'

Technology has enabled an American music composer to live and create far more than she would have otherwise, and her AI-composed album, the world's first, proves that. She tells **Su Aziz** more.



Taryn points out that, while one may argue when monkeys and elephants create paintings, they aren't exercising creativity, 'That doesn't mean the person buying the art doesn't experience something in that painting and imbues it with his or her own meaning.'

'But aside from all of that, what a lot of people don't yet see, is how AI will actually empower solo artists, like myself, to be able to create things using a different language than they have in the past,' she adds. 'It still takes hard work and effort. But it's very possible that this new language for music helps level the playing field and create opportunities for those who don't have a traditional background in music.'

TECH, BEAT BY BEAT

In general, Taryn discloses, most publications have focused on her work using Amper, 'It's the easiest for anyone to use. But very few have focused on Watson Beat or AIVA. AIVA's interesting specifically because it is trained on classical music. So, I like that I'm able to participate in a different type of collaboration than what I'd have access to in the "pop producer" world. Watson Beat requires some coding knowledge but a lot more creative input from the artist to change or edit a song.'

In her experience, there's a learning curve for Watson Beat and Magenta's tools. 'The Watson team actually got on multiple Skype sessions with me, to help me through it. But once you get the hang of it, it just becomes a matter of being familiar with the "language" of each system, so you know how to direct it to get a sound or style you like,' Taryn explains.

'I don't know if technology saves me any time. There's a fair argument that it actually took me more time than the traditional way of making music. What it does, is give me a set of unique, forced constraints and then I have to come up with creative solutions to make that work,' she says. 'I find that sort of challenge immensely delicious and an amazing way to kickstart creativity. The other huge benefit is that I can make this album all on my own. Prior to working with AI, the only way I could produce tracks was to work with a music producer.'

Taryn's non-traditional music background and the fact that she was never trained in music production or theory, would have made the learning curve incredibly steep. However, she admits to how, 'Working with AI, I could actually construct the songs using the output stems and arranging them in Logic or Garageband. No experience with music composition required, just basic editing skills and a good ear. It's empowering to know that I can produce the music all on my own.'

THE PROCESS

It's really not just about pushing a button and a song pops out. Interestingly, in working with AI, Taryn becomes dual-tasking as both composer and editor of the tracks rather than just a composer, something that has been predicted to happen to us all with the advent of technology.

First of all, Taryn tells the AI tool what sort of song she wants, along with such details as what musical key or if it's fast or slow beat. After which, it'll churn out music that, according to Taryn, 'Is usually pretty



Working with AI, I could actually construct the songs using the output stems and arranging them in Logic or Garageband. No experience with music composition required...

bad.' She then takes that music and tweaks it for hours before the AI tool works at the tweaked version, and the process repeats and continues till the music is what she wants. It can be a lot of hits and misses when it comes to what the AI suggests, but persevering will pay off in the end.

This tells us two things: that working with AI doesn't necessarily save time and the creative process seems to equal that of a human's.

TUNING THE DETAILS

Taryn shares the profits from the album with the AI that helped compose the music. But how does that work, exactly? 'It depends on the AI company, but keep in mind it's not going to a piece of software. There are engineers or musicians in each case who built the system or code that creates the music and they have to keep the lights on,' she answers. 'I've never made much money on my music – that's the sad reality for most musicians. The cost of making and marketing songs is high. You do it because you love it and you have something to say. If I end up making money, I'm happy to share the pie with all of those who helped make this album possible.'

When it comes to regulations in the music industry on rights and ethics of AI machines, Taryn has this to say, 'No one's going to be fighting for the rights of machines in the music industry, yet. The argument right now centres around the legal and due process – at what stage of AI is truly generating new forms, versus derivative works and how does that affect backend compensation rights. All of these things are being discussed and by no means do I think I should be the expert or consulted on these things, it's a discussion that needs to happen.'

LAST NOTES

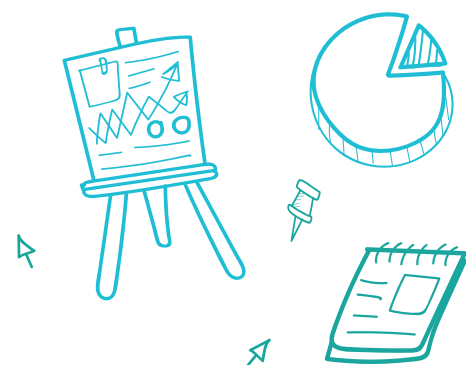
For Taryn, the future of music is now. 'Just as hip hop and electronic music birthed new tools and forms of storytelling in music, collaborations with AI will do the same. We've seen a trend toward democratisation and globalisation across the industry,' she says. 'And I do believe that'll continue to happen and further enabled by AI.'

Her two main advice to musicians considering the same technological path as she has taken are, 'Have fun experimenting with musical styles outside of your preferred style, that'll inevitably lead to exciting new collaborations, and play with all the tools to see which best fits your needs.' ■

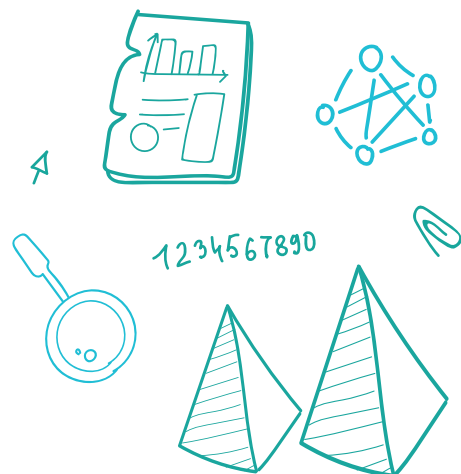
A LAB FULL OF IDEAS

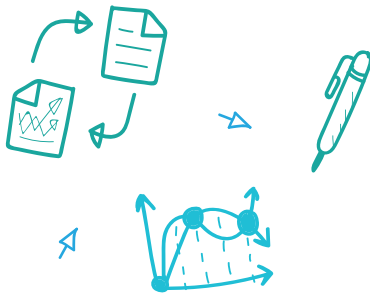
WIEF Young Leaders Network initiative, IdeaLab 2018, traveled to Goa in India to serve as a platform for startups there to discuss challenges and opportunities.

Samar Al-Montser reports in photos.



After three successful editions, this year's WIEF IdeaLab 2018 expanded for the first time beyond ASEAN to Goa, India, and was held on 16 – 17 October at the Goa Institute of Management (GIM). IdeaLab, an initiative of WIEF Foundation's Young Leaders Network (WYN), is a distinguished startup conference that cultivates entrepreneurs and assists in developing the startup ecosystem. Goa, aiming to be a startup hub in the next five years proved to be a good venue for IdeaLab's first sojourn abroad and it attracted close to 400 participants from six countries comprising startups, students and ecosystem partners among others.





Former director of GIM, Peter F. X. D'Lima, officiates the opening of WIEF IdeaLab 2018 with the Indian custom of lighting the Indian traditional lamp along with various dignitaries.



Razif Abdul Aziz, Acting Group CEO of Cradle Fund Sdn Bhd from Malaysia spoke about the struggles of startups and how it's very important not to fall in the trap of being focused in just one area.



Jan Lambrechts, CEO of CXS International, spoke in the session about how innovation and big data is rapidly changing every industry.



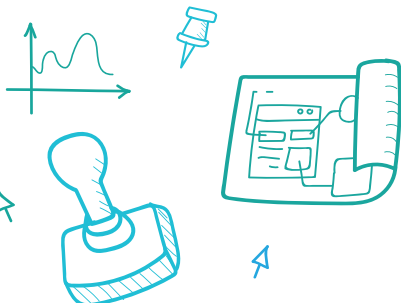
In the plenary sessions, mindful participants engaged in discussion with the speakers on various topics including how to start a business in Goa, investments, blockchain among others.



IdeaLab's a big advocate of the arts and it's no different this time in Goa with Soundscape Pop-up sessions to liven things up and add colour to an already exciting event.



At Lab 51, the breakout room provided workshops for early stage startups who were also given the opportunity to share their experience living the startup life.



14 YEARS

AND GOING STRONG

Since the beginning of WIEF in the year 2005, all its digital initiatives and properties have been garnering new, positive and returning visitors year-on-year

